Attachment 2

TORONTO GREEN STANDARD v3

SUSTAINABILITY REQUIREMENTS FOR NEW DEVELOPMENT IN TORONTO

Mid to High-Rise Residential &
All Non-Residential

311 Toronto at your service

TORONTO

AIR QUALITY

Development Feature

Low-Emission Transportation

Encourage the use of low emitting, fuel efficient vehicles, car pooling and car-sharing

TIER 1

AQ 1.1 Transportation Demand Management (TDM) and Multimodal Infrastructure

Reduce single occupancy auto vehicle trips from generated by proposed development by 15% through a variety of multimodal infrastructure strategies and TDM measures.

AQ 1.2 LEV and Sustainable Mobility Spaces

If providing more than the minimum parking required under the Zoning Bylaw, the excess spaces must be dedicated priority parking spaces for low-emitting vehicles (LEV), carpooling/ridesharing or for publicly accessible spaces dedicated to shared vehicle systems such as car-sharing, ride-sharing, or micro mobility systems.

AQ 1.3 Electric Vehicle Infrastructure

Design the building to provide 20% of the parking spaces with electric vehicle supply equipment (EVSE). The remaining parking spaces must be designed to permit future EVSE installation that conforms with s. 86 of the ESC.

TIER 2

AQ 1.4 Single-Occupant Auto Vehicle Trips (Optional)

Reduce single occupancy vehicle trips generated by proposed development by 30% through a variety of multimodal infrastructure strategies and TDM measures.

AQ 1.5 Electric Vehicle Infrastructure (Optional)

Design the buildings to provide 25% of the parking spaces with electric vehicle supply equipment (EVSE). The remaining parking spaces must be designed to permit future EVSE installation.

Development Feature

Cycling Infrastruture

Encourage cycling as a clean air alternative

TIER 1

AQ 2.1 Bicycle Parking Rates

Residential: Bicycle Zone 1: (1 per unit) Provide a minimum of 0.9 long-term bicycle parking spaces and 0.1 short-term bicycle parking spaces per dwelling unit.

Bicycle Zone 2: (0.75 per unit) Provide a minimum of 0.68 long-term bicycle parking spaces and 0.07 short-term bicycle parking spaces per dwelling unit.

All other uses: Bicycle Zone 1 and Bicycle Zone 2: Provide long-term and short-term bicycle parking spaces consistent with the non-residential bicycle parking rates identified in Chapter 230 of the City-wide Zoning Bylaw.

AQ 2.2 Long-term Bicycle Parking Location

Long-term bicycle parking must be provided in a secure controlled-access bicycle parking facility or purpose-built bicycle locker:

(i) on the first storey of the building;
(ii) on the second storey of the building;
(iii) on levels of the building be low-ground commencing with the first level below ground.

AQ 2.3 Short-term Bicycle Parking Location

Locate short-term bicycle parking in a highly visible and publicly accessible location at-grade or on the first parking level of the building below grade.

AQ 2.4 Shower & Change Facilities

Non-residential uses: Provide shower and change facilities consistent with the rate identified in Chapter 230 of the City-wide Zoning Bylaw.

TIER 2

AQ 2.5 Enhanced Bicycle Parking rates (Optional)

Residential:
Bicycle Zone 1: (1.2 per unit)
Provide a minimum of 1.08 long-term and 0.12 short-term bicycle parking spaces per dwelling unit.
Bicycle Zone 2: (1.0 per unit)
Provide a minimum of 0.9 long-term and 0.1 short-term bicycle parking spaces per dwelling unit.

AQ 2.6 Publicly Accessible Bicycle Parking (Optional)

For all uses within 500m of transit station entrance, provide at least 10 publicly accessible, short-term bicycle parking spaces, at-grade on the site or within the public boulevard in addition to parking required under AQ 2.1. Bicycle parking must be weather protected except where located in the public boulevard.

OR

Provide a publicly accessible Bicycle Shelter at-grade along the site frontage.

AQ 2.7 Bike Share (Optional)

Provide a public bike share location at-grade on the site or within the public boulevard.

Development Feature

Pedestrian Infrastructure

Encourage walking as a clean air alternative for all ages and abilities

TIER 1

AQ 3.1 Connectivity

Provide safe, direct, universally accessible pedestrian routes, including crosswalks and midblock cross-ings that connect the buildings on site to the off-site pedestrian network and priority destinations.

AQ 3.2 Sidewalk Space

Provide a context-sensitive pedestrian clearway that is a minimum of 2.1 m wide, to safely and comfortably accommodate pedestrian flow.

AQ 3.3 Weather Protection

Provide covered outdoor waiting areas for pedestrian comfort and protection from inclement weather.

AQ 3.4 Pedestrian Specific Lighting

Provide pedestrian-scale lighting that is evenly spaced, continuous and directed onto sidewalks, pathways, entrances, outdoor waiting areas and public spaces.

Development Feature

Urban Heat Island

Reduce the impact of local heat islands on human and ecosystem health

TIER 1

AQ 4.1 UHI Non-roof Hardscape

Use a combination of the following strategies to treat at least 50% of the site's non-roof hardscape (including driveways, walkways, courtyards, surface parking areas, artificial turf and other on-site hard surfaces):

- High-albedo paving materials with an initial solar reflectance of at least 0.33 or SRI of 29
- Open grid pavement with at least 50% perviousness
- Shade from existing or new tree canopy within 10 years of landscape installation
- Shade from architectural structures that are vegetated or have an initial solar reflectance of at least 0.33 at installation or an SRI of 29
- Shade from structures with energy generation.

Non-residential uses: Select one or a combination of the above strategies; OR

Place a minimum of 75% of the required parking spaces under cover. Any roof used to shade or cover parking must have an initial SRI of at least 29 or be a green roof or be covered by energy generation systems.

AQ 4.2 Green & Cool Roofs

Buildings where the Green Roof Bylaw is applied:
Install a Green Roof to meet the requirements of the Green Roof Bylaw.

Where the Green Roof Bylaw does not apply:
Provide one of the following:

Green roof for at least 50% of Available Roof Space; OR

Cool roof installed for 100% of Available Roof Space; OR

Use a combination of a green, cool roof or solar PV for at least 75% of Available Roof Space

TIER 2

AQ 4.3 Enhanced UHI Non-roof Hardcape (Core)

Use any combination of the strategies in AQ 4.1 to treat at least 75% of the site's non-roof hardscape (including driveways, walkways, courtyards, parking areas, artificial turf and other on-site hard surfaces).

Development Feature

Energy Efficiency

Reduce energy loads in buildings, encourage passive design strategies and provide protection during power disruptions

TIER 1

GHG 1.1 Buildings Energy Performance

Design the buildings to meet or exceed one of the following:

a) 15% energy efficiency improvement above the Ontario Building Code, SB-10, Division 3 (2017); OR

b) Tier 1 TEUI,TEDI and GHGI targets by building type, as provided in the Table 1.

TIER 2

GHG 1.2 Advanced Buildings Energy Performance (Core)

Design the buildings to meet or exceed the Tier 2 TEUI, TEDI and GHGI targets by building type, as provided in the Table 1.

Note: Tier 3 or 4 high performance buildings targets (near zero emissions), may also be applied and substituted for Tier 2 levels of performance. Alternative compliance options will be accepted for Tier 3 or Tier 4 TGS including the CaGBC Zero Carbon Building Standard or Passive House standards certification. See the Energy Report Guideline for details.

Table 1: Building Energy Performance Requirements Tier 1 & 2

Building Type	Total Energy Use Intensity* (eKWh/m2)		Thermal Energy Demand Intensity* (eKWh/m2)		Greenhouse Gas Intensity* (kgCO2e/m2)	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
Multi-unit Residential Buildings (>6 Storeys)	170	135	70	50	20	15
Multi-unit Residential Buildings (≤6 Storeys)	165	130	65	40	20	15
Commercial Office Buildings	175	130	70	30	20	15
Commercial Retail Buildings	170	120	60	40	20	10
Mixed Use Buildings (90% residential, 5% retail, 5% commercial)	170	134	70	49	20	15
All Other Building Types	*Tier 1: ≥15% improvement above SB-10, 2017 Tier 2: ≥25% improvement above SB-10, 2017					

***Follow the Energy Report Guideline for definitions and modelling guidelines for all targets including Tier 3 and 4 near zero emissions optional targets.**

****For specific mixed-use buildings, specific targets can be derived using an area weighted average of the performance targets from the other building types.**

Development Feature

Energy Efficiency

Reduce energy loads in buildings, encourage passive design strategies and provide protection during power disruptions

TIER 3 OR 4

GHG 1.3 High Performance, Low Carbon Pathway

Design the buildings to meet or exceed the Tier 3 or Tier 4 targets by building type as provided in Table 2.

Note: Alternative compliance options will be accepted for Tier 3 or Tier 4 TGS including the CaGBC Zero Carbon Building Standard or Passive House standard certification. See the Energy Report Guideline for details.

Table 2: High Performance, Near Zero Emissions Requirements Tier 3 & 4

Building Type	Total Energy Use Intensity* (eKWh/m2)		Thermal Energy Demand Intensity* (eKWh/m2)		Greenhouse Gas Intensity* (kgCO2e/m2)	
	Tier 3	Tier 4	Tier 3	Tier 4	Tier 3	Tier 4
Multi-unit Residential Buildings (>6 Storeys)	100	75	30	15	10	5
Multi-unit Residential Buildings (≤6 Storeys)	100	70	25	15	10	5
Commercial Office Buildings	100	65	22	15	8	4
Commercial Retail Buildings	90	70	25	15	5	3
Mixed Use Buildings (90% residential, 5% retail, 5% commercial)	100	74	29	15	10	5

***Refer to Energy Report Guideline for definitions and modelling guidelines for all targets including Tier 3 and 4 near zero emissions optional targets.**

****For specific mixed-use buildings, specific targets can be derived using an area weighted average of the performance targets from the other building types.**

Development Feature

Renewable Energy

Provide low carbon energy sources of supply

TIER 2

GHG 2.1 Solar Readiness (Core)

Ensure that buildings are designed to accommodate connections to solar PV or solar thermal technologies.

GHG 2.2 On-Site Renewable Energy (Optional)

Design on-site renewable energy systems to supply one of the following:
a) minimum of 5% of the building's total energy load from one or a combination of acceptable renewable energy sources; OR
b) minimum of 20% of the building's total energy load from geoexchange.

Development Feature

District Energy Systems

Support low carbon, thermal energy networks

TIER 2

GHG 3.1 District Energy Connection (Core)

Design buildings to connect to a district energy system where one exists or is slated for development.

Development Feature

Operational Systems

Optimize and verify systems are installed and efficiencies are achieved

TIER 2

GHG 4.1 Benchmarking & Reporting (Core)

Register the building on ENERGYSTAR® Portfolio Manager.

GHG 4.2 Best Practice Commissioning (Core)

Commission the project using best pratice commissioning.

GHG 4.3 Air Tightness Testing (Core)

Conduct a whole-building Air Tightness Test to improve the quality and airtightness of the building envelope.

GHG 4.4 Submetering (Optional)

Install thermal energy meters for each heating/cooling appliance in all residential units.

OR

Design buildings to include thermal energy meters for each individual tenant in multi-tenant commercial/retail buildings.

Development Feature

Building Resilience

Enable self-recovery during an emergency power disruption

TIER 2

GHG 5.1 Resilience Planning (Core)

Complete the Resilience Checklist.

GHG 5.2 Refuge Area and Back-Up Power Generation (Optional)

Residential uses: Provide a refuge area with heating, cooling, lighting, potable water, and power available; AND
Provide 72 hours of back-up power to the refuge area and essential building systems.

WATER BALANCE, QUALITY AND EFFICIENCY

Development Feature

Construction Activity:

Protect water quality during construction and demolition

TIER 1

WQ 1.1 Erosion & Sediment Control

Follow the Erosion and Sediment Control Guideline for Urban Construction (Greater Golden Horseshoe Conservation Authorities, December 2006) during construction and demolition activities.

Development Feature

Water Balance (Stormwater Retention):

Capture and manage rainfall to improve water quality and aquatic ecosystem health while enhancing the resilience of infrastructure to extreme rainfall events.

TIER 1

WQ 2.1 Stormwater Retention & Reuse

Retain runoff generated from a minimum of 5 mm depth of rainfall from all site surfaces through infiltration, evapotranspiration and water harvesting and reuse.

TIER 2

WQ 2.2 Advanced Stormwater Retention & Reuse (Core)

Retain runoff generated from a minimum of 10 mm depth of rainfall from all site surfaces through infiltration, evapotranspiration and water harvesting and reuse.

TIER 3

WQ 2.3 High Performance Stormwater Retention & Reuse (Core)

Retain runoff generated from a minimum of 25 mm depth of rainfall from all site surfaces through infiltration, evapotranspiration and water harvesting and reuse.

Development Feature

Water Efficiency

Reduce demand for potable water through efficient fixtures and appliances and the reuse of non-potable water

TIER 1

WQ 4.1 Drought-Tolerant Landscapes

Where potable water is used for irrigation, provide drought-tolerant plants for at least 50% of the landscaped site area (including at-grade landscapes, vegetated roofs and walls).

TIER 2

WQ .2 Water Efficient Fixtures (Core)

Install water fixtures that achieve at least a 40% reduction in potable water consumption for the building (not including irrigation) over the baseline water fixtures.

WQ 4.3 Efficient Irrigation (Core)

Where soft landscaping exists on the site, reduce potable water use for irrigation by 60%.

TIER 3

WQ 4.4 Advanced Water Efficient Fixtures (Core)

Install water fixtures or use non-potable water sources to achieve at least a 50% reduction in potable water consumption for the building (not including irrigation) over the baseline water fixtures.

Development Feature

Urban Forest: Increase Tree Canopy

Create landscapes that support tree growth and enhance the urban forest

TIER 1

EC 1.1 Tree Planting Areas and Soil Volume

Create tree planting areas within the site and in the adjacent public boulevard that meet the soil volume and other requirements necessary to provide tree canopy. Determine the total amount of soil required by following the following formula:

40% of the site area ÷ 66 m^2 x 30 m^3 = total soil volume required

Ensure that each separate tree planting area has a minimum of 30m^3 soil.

EC 1.2 Trees Along Street Frontages

Plant large growing shade trees along street frontages that are spaced appropriately having regard to site conditions and have access to a minimum of 30 m^3 of soil per tree.

EC 1.3 Parking Lots

Parking Lots: If surface parking is permitted and provided, plant large growing shade trees throughout the parking lot interior at a minimum ratio of one tree planted for every five parking spaces supplied.

EC 1.4 Watering Program

Provide a watering program for trees for at least the first 2 years after planting.

TIER 2

EC 1.5 Enhanced trees in parking lots (Optional)

If surface parking is provided, plant large growing shade trees at a minimum ratio of one tree planted for every three parking spaces supplied.

EC 1.6 Enhanced Tree Planting and Soil Volume (Optional)

Provide 25% more than the total soil volume required as per EC 1.1. Soil shall be deployed on-site or on adjacent properties as approved by the City of Toronto.

EC 1.7 Enhanced Tree Protection During Construction (Optional)

Provide double the minimum tree protection zones for all existing trees on sites outside of the Ravine Protected Area.

Development Feature

Natural Heritage

Protect, restore and enhance Ravine and Natural Feature Protected Areas

TIER 1

EC 2.1 Ravine and Natural Feature Protected Areas and Natural Heritage System

Plant the landscaped area within the Natural Heritage System and the Ravine Protected Area with 100% native plants (including trees, shrubs and herbaceous plants).

EC 2.2 Ravine and Protected Areas Buffers

Where a setback from the toe-of-slope or the top-of-bank is required within the Natural Heritage System or the Ravine Protected Area prepare and implement a stewardship plan for the area.

Development Feature

Biodiversity In Landscapes

Enhancement of native plant and animal species, habitat and ecosystems

TIER 1

EC 3.1 Native Species and Pollinator Supportive Species

Plant the landscaped site area using a minimum of 50% native plants (including trees, shrubs and herbaceous plants).

EC 3.2 Invasive Species

Do not plant any invasive species within the site or along street frontages.

TIER 2

EC 3.3 Restoration of Biodiversity and Pollinator Habitat (Optional)

Restore or protect a minimum of 30% (including the building footprint) of all portions of the site identified as previously disturbed, with native vegetation that includes at least two native flowering species that bloom at all periods over the growing season.

EC 3.4 Biodiverse Green Roofs for Pollinators (Optional)

Provide a minimum of 50% of Available Roof Space as biodiverse green roof to support pollinator species.

Development Feature

Bird Collision Deterrence

Design buildings to reduce bird collisions and mortality

TIER 1

EC 4.1 Bird Friendly Glazing

Use a combination of the following strategies to treat a minimum of 85% of all exterior glazing within the greater of first 12 m of the building above grade or the height of the mature tree canopy (including balcony railings, clear glass corners, parallel glass and glazing surrounding interior courtyards and other glass surfaces):

Low reflectance, opaque materials
Visual markers applied to glass with a maximum spacing of 100 mm x 100 mm
Building-integrated structures to mute reflections on glass surfaces.

Balcony railings: Treat all glass balcony railings within the first 12 m of the building above grade with visual markers provided with a spacing of no greater than 100 mm x 100 mm.

Fly-through conditions: Treat glazing at all heights resulting in a fly-through conditions with visual markers at a spacing of no greater than 100 mm x 100 mm. Fly through conditions that require treatment include:

Glass corners
Parallel glass
Building integrated or free-standing vertical glass
At-grade glass guardrails
Glass Parapets

EC 4.2 Rooftop Vegetation

Treat the first 4m of glazing above the feature and a buffer width of at least 2.5 m on either side of the feature using strategies from EC 4.1

EC 4.3 Grate Porosity

Ensure ground level ventilation grates have a porosity of less than 20 mm X 20 mm (or 40 mm x 10 mm).

TIER 2

EC 4.4 Enhanced Bird Friendly Glazing (Optional)

Use a combination of the following strategies to treat a minimum of 95% of all exterior glazing within the greater of the first 12 m of the building above grade or the height of the mature tree canopy (including all balcony railings, clear glass corners, parallel glass and glazing surrounding interior courtyards and other glass surfaces):

Low reflectance, opaque materials
Visual markers applied to glass with a maximum spacing of 100 mm x 100 mm
Building-integrated structures to mute reflections on glass surfaces.

Development Feature

Light Pollution

Reduce nighttime glare and light trespass to support ecosystem and human health

TIER 1

EC 5.1 Exterior Lighting

All exterior fixtures must be Dark Sky compliant.

TIER 2

EC 5.2 Enhanced Lighting

Any rooftop and facade architectural illumination must be directed downward and turned off between the hours of 11 p.m. and 6 a.m.

EC 5.3 Lighting Controls

Non-residential buildings: Install an automatic device that reduces the outward spillage of internal light by:

a) Reducing the input power to lighting fixtures by at least 50% between the hours of 11 p.m. and 6 a.m. year-round; OR
b) Shielding all openings in the envelope with a direct line of sight to any non-emergency light fixtures between the hours of 11 p.m. and 6 a.m. year-round.

Development Feature

Storage and Collection of Recycling and Organic Waste

Facilitate waste reduction and diversion

TIER 1

SW 1.1 Waste Collection & Sorting

Residential uses: Provide a waste sorting system for garbage, recycling and organics using one of the following:

a) a single chute with a tri-sorter;
b) two separate chutes with one of the chutes equipped with a dual sorter;
c) Provide three separate chutes for garbage, recycling, and organics collection on all floors,
d) Provide a central waste collection and waste diversion facility on the ground floor for garbage, recycling, and organics collection.

SW 1.2 Waste Storage Space

Residential uses: Provide an easily accessible waste storage room with a minimum floor space of 25 m^2 for the first 50 units plus an additional 13m^2 for each additional 50 units to accomodate containers and the compactor unit.

SW 1.3 Bulky Waste

Residential uses: Provide a minimum of 10m^2 for bulky items and items eligible for special collection services.

SW 1.4 Compaction

Residential uses: Developments with 31 units or above must ensure that all garbage is compacted by means of a compactor unit. The waste storage room must provide sufficient space to accommodate the compactor unit, to accommodate containers and the compactor unit.

TIER 2

SW 1.5 In-suite Waste Storage Space (Optional)

Residential: Provide a cabinet space in all kitchen suites for segregated collection of:

- Recyclables
- Organics
- Garbage

SW 1.6 Household Hazardous Waste (Core)

Residential uses: Provide a dedicated collection area or room for the collection of household hazardous waste and/or electronic waste.

SOLID WASTE

Development Feature

Building Reuse

To encourage adaptive reuse and optimize the environmental performance of products and materials.

TIER 2

SW 2.1 Building Lifecycle Impact Reduction (Optional)

Reuse or salvage building materials from off-site or on-site equal to 50% of the surface area of the existing building.

Development Feature

Construction Waste Management

Divert non-hazardous construction and demolition debris

TIER 2

SW 3.1 Construction Waste (Core)

Divert at least 75% of the total construction and demolition material; diverted materials must include at least four material streams.

TIER 3

SW 3.2 Construction Waste (Core)

Divert at least 95% of the total construction and demolition material; diverted materials must include at least four material streams.

Development Feature

Sustainable Building Materials

Encourage the use of products and materials that minimize the lifecycle impacts to the environment.

TIER 2

SW 4.1 Sustainable Building Materials

Ensure that at least 25%, by cost, of the total value of permanently installed building products in the project at meet at least one of the extraction criteria for OPTION 2 of LEED V4 MR CREDIT: BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION – SOURCING OF RAW MATERIALS.